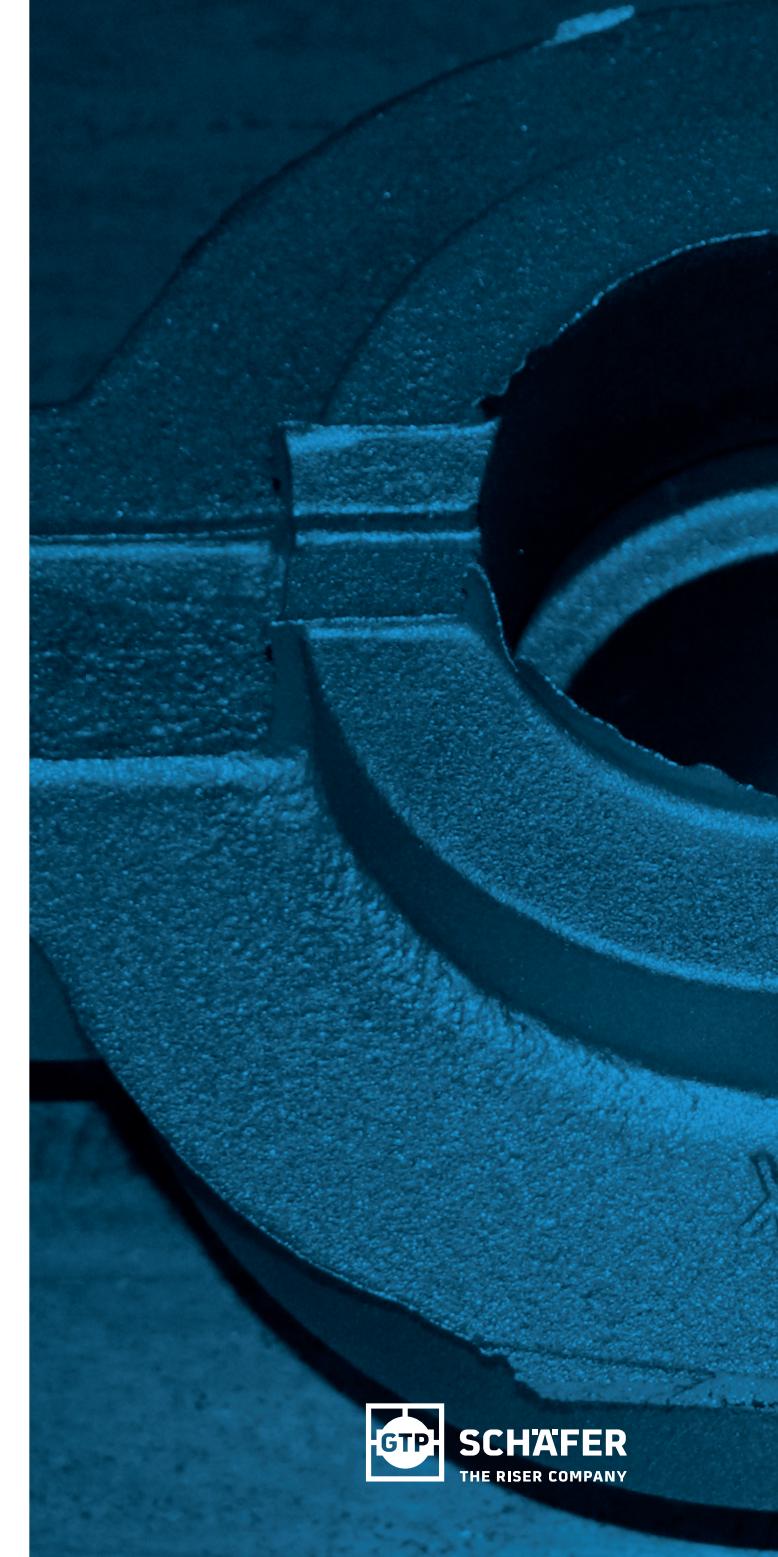

Hydraulic casting **NETFrame®**

The customer St. Leon-Rot GmbH (SLR) is one of the leading ductile cast iron foundries in Europe producing castings for the construction and agricultural machinery industry sectors with an annual capacity of 120,000 Mt. To optimise cleaning costs, GTP NETFrame ® technology was first trialled in 2017 and has been in serial production since 2018.



NET-Technology®?

The larger the feeder neck diameter the more reliable is the feeding of the casting, however, when riser contact exceed a certain size the effort required to remove the remaining riser rest increases significantly. With ever more complex casting shapes, and the requirement for feeding in harder to reach areas, removal of risers becomes even more time consuming.

A significant proportion of costs incurred during the production of castings, occurs in the cleaning department, with excessive cutting and grinding for the removal of risers and gating systems. The NET-Technology® range of solutions from GTP Schäfer were specifically designed to optimise riser removal and reduce costs.

The standard NET-Technology® product range from GTP Schäfer enables the easy removal of risers with contacts up to 150 mm, with regular tools, within the normal process flow eliminating costly and time consuming post casting processing.

Within the NET-Technology® product range the NET-Core® Technology, furthermore, addresses the issues associated with the use of large risers and traditional breaker cores, where there is a high risk of the breaker core sintering to the casting further increasing the effort required for riser removal.

With the NET-Technology® product range from GTP Schäfer, all risers and associated contacts can be removed easily, reducing costs and increasing the casting quality.



Product range

NETCore®

Breaker core technology which can be applied with highly exothermic -Thermo Risers, cylindrical or cylindrical reduced EXO-ISO fiber sleeves, consisting of a high temperature resistant ceramic media to prevent sintering, in combination with a refractory mesh placed directly at the casting surface ensures the formation of a clean predetermined breaking point along the entire riser neck cross-section.

NETFrame®

The NETFrame® has been specially designed for the removal of large side risers. It is positioned into the riser neck adjacent to the casting surface where the refractory mesh ensures a defined and predetermined fracture point ensuring easy removal of the riser.

NETSleeve®

Specifically designed for use in hand moulding. The elimination of the traditional breaker ensures optimised, and reliable feeding of the casting due to the increased contact of the riser at the casting. Easy riser removal is ensured due to the addition of the refractory mesh and the predetermined fracture point within the riser neck.

NETFrame®

The NETFrame® products are equipped with a high-temperature resistant Fabric that is clamped in a special metal frame. By the special shape of the frame „grasps“ it into the moulding sand, and fixes the NETFrame® directly to the component surface. The fabric produces a targeted weakening of the material, so that the Targeted incision or neck of the esophagus in the area of the net tissue is weakened. At this predetermined breaking point, the feeder remainder quickly and reliably.



Cleaning costs
reduction



Rejects
reduction



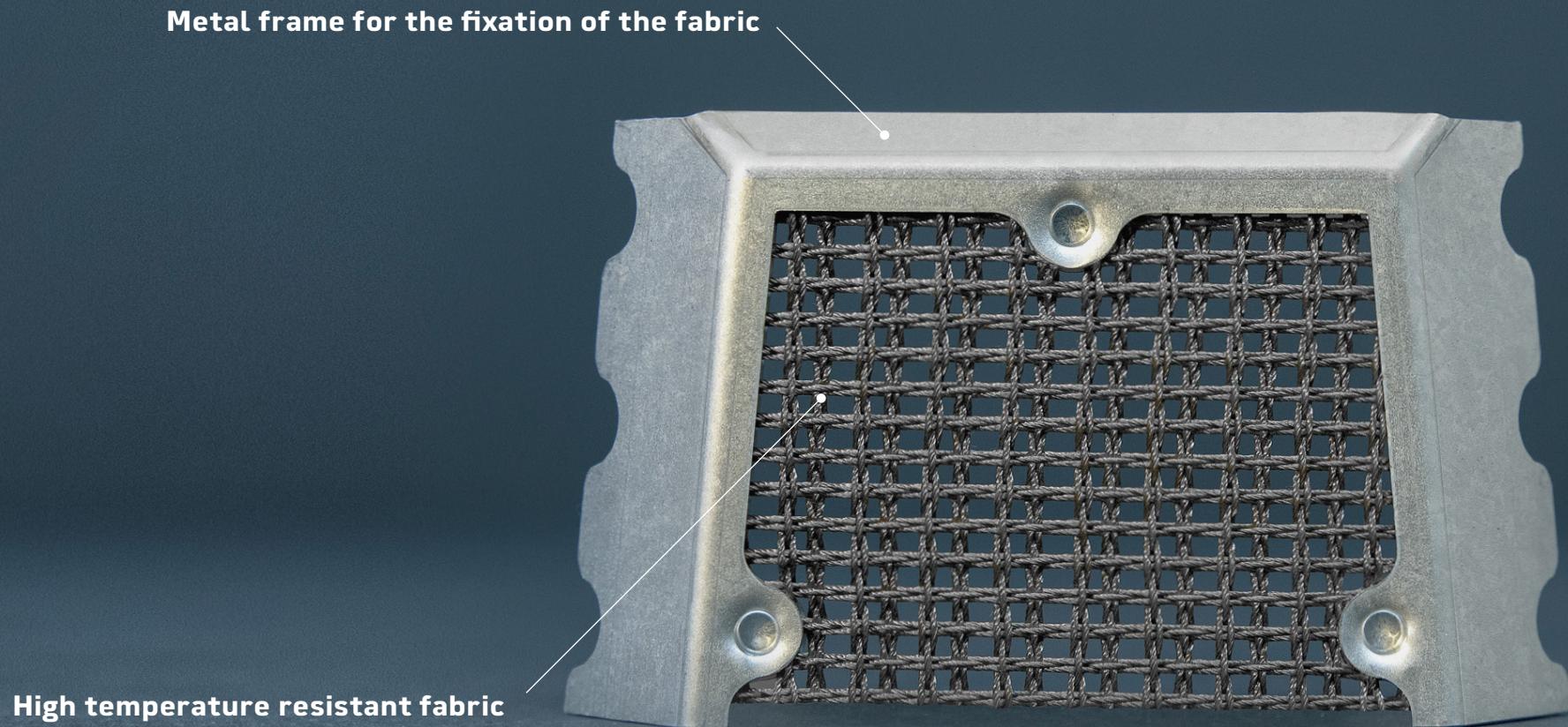
Teeing up
to 450 mm



Clear
time savings



Decreased
risk of injury



Customer opinion

Problem: A large side riser is employed having a contact area of 95 x 75 mm. Due to the size of the contact it is not possible to remove the riser with traditional mechanical means safely without risk of the contact breaking into the casting, meaning that the casting must be transported to a separate work area for riser removal by cutting.

Challenge: Removal of the feeder residue within the regular process, no movement of castings to additional cutting stations and without risk for the riser contact breaking into the casting surface.

Customer	SLR Giesserei St. Leon-Rot GmbH
Application	Hydraulic casting
Material	Customer-specific GJS500 – GJS600
Weight	75 kg
Model design	Two castings on model plate
Feeding technology	Side feeder
Solution	Integration of NETFrame® technology „NF 120 Special“ into the casting process. The NETFrame® is placed onto the cope pattern prior to moulding within the riser contact, and against the casting surface.



Advantages with NETFrame®

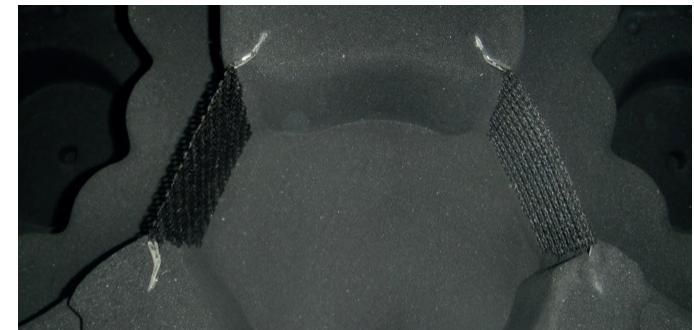
„By using the NETFrame® technology from GTP we are able to significantly reduce our processing times for demanding castings that traditionally have extended cleaning times. Riser removal is facilitated within the normal process eliminating the requirement for separate cutting operations. Furthermore, our rejection rate for breaking in defects has significantly reduced.“

Christian Zouplna
Foundry Manager

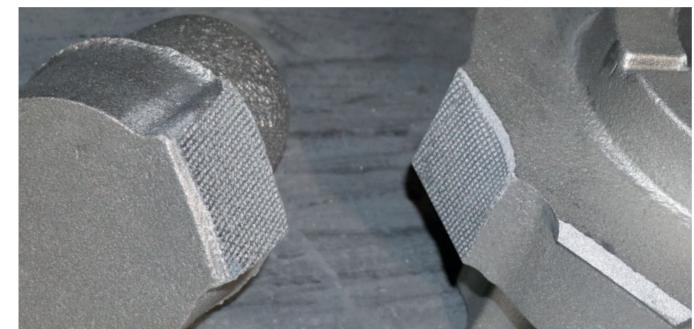
Process steps in comparison

The case study below details the time saved in the processing of castings and removal of risers through the cleaning department with and without NETFrame® technology.

Process step	Without NETFrame®	With NETFrame®
Knock off of riser rest	not possible	1 min (3-5 hammer strokes)
Taking casting out of process	2 min	not applicable
Transportation to cutting station	1 min	not applicable
Positioning of casting for cutting	2 min	not applicable
Cutting and grinding riser rests	6 min	not applicable
Return to process	1 min	not applicable
Total time	12 min	1 min



NETFrame® after the moulding process



Riser rest after knocking off



Riser rest after knocking off

Results

The riser was able to be removed by traditional mechanical methods (wedge) without the need for cutting. It was not necessary to remove the casting to a separate work area resulting in a significant reduction in the amount of labour involved in removing riser residues. The riser removal utilising GTP NETFrame® Technology resulted in the riser contact breaking directly at the cast surface eliminating the risk for breaking in and a significant reduction in the overall casting rejection rate was achieved.



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